

IV. REMARKS

The Examiner is thanked for extending the courtesy of a telephone interview on December 21, 2005 during which it was agreed that his objection to Fig. 1 was meant to refer to Fig. 2.

It is respectfully pointed out that reference number 208a is mentioned on p.5, 1.29, while number 212 is mentioned on p.5, 1.19. The description has been amended to recite that number 242 designates other electronics components. Note that numbers 342, 442 and 542 have this designation (see p.6, 11.14 and 15; p.6, 1.24; and p.7, 1.4, respectively). It is therefore submitted that the drawings are no longer objectionable.

Claims 1-6 and 8-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 has been amended so that there is an antecedent for "third area" in line 15. It is respectfully submitted that in claim 12 "third area" already has an antecedent on line 13. Thus in both claims there is now only a single third area.

While it is true that claims 1 and 12 recite that the printed wire board is parallel to the ground plane and the radiator element, it is also true that the PWB is attached to the ground plane and radiator element since the attachment only occurs at the ends of the PWB, ground plane and radiator element. Further all three areas are shown in the drawings although the first and second areas are not specifically designated.

In particular, the concepts of first, second and third areas were originally introduced in the application because the invention involves using three essentially parallel planar components (the antenna radiator, the ground plane, and the low reluctance plate), and there is needed some way of describing, how these planar components are located with respect to each other. There is a fourth planar component, the circuit board, which is also parallel with the three others and additionally typically larger than any of them. It is a good and intuitive way to describe, what area of the circuit board is covered by each of the three other planar components. "Covered" does not mean any essential requirement of physically attaching something onto the surface of the circuit board; it is what a mathematician would call the direct projections of the three other components onto the planar subspace that is limited by the edge contour of the circuit board.

The first, second and third areas are easy to see in the side view of Fig. 2 of the application. If one looks at the assembly of Fig. 2 from above, the ground plane 218 would keep one from seeing one area of the surface of the circuit board (which here is essentially the whole of what one sees of the circuit board in Fig. 2). This is the "first area". Still looking from above, the radiator element 216 would keep one from seeing another part of the circuit board (which happens to be also covered by one part of the ground plane 218, but this does not matter). The part of the circuit board that remains under the radiator element 216 when looked from above is the "second area". If one now looks at the assembly of Fig. 2 from below and ignore the display components 208a and 208b, the low reluctance plate 245 would again keep one from seeing one part of the circuit board. This is the "third area".

One also sees in Fig. 2 how the first, second, and third areas are located with respect to each other. From the side view of Fig. 2 one actually cannot say, whether this embodiment falls within the scope of the pending claims, because the claims require the third area (the area covered by the low reluctance plate 245) to be "at least in part outside said first and second areas". This can only be true in Fig. 2 if the low reluctance plate 245 is wider than the ground plane in the direction perpendicular to the surface of the paper, which the drawing obviously does not show.

Fig. 3 offers another very good view of how the first, second and third areas are related to each other. Here the radiator element 316 and the ground plane 318 appear to be essentially of the same size. They also align with each other in location, which means that in this embodiment the first area (covered by the ground plane 318) and the second area (covered by the radiator element 316) are exactly the same. The low reluctance plate 345 covers a third area, which is even explicitly shown in Fig. 3 as area 346. In this embodiment it is completely outside the first and second areas, i.e., even if the first and second areas overlap completely, there is no overlap at all between them and the third area.

As pointed out above, the third area is even explicitly shown in Fig. 3 as area 345. The first and second areas are clearly seen in all drawings that show the circuit board, the ground plane and the radiator, because in all these cases one sees clearly how the ground plane coincides in location with (i.e., covers) a first area of the circuit board, and the radiator coincides in location with (i.e., covers) a second area of the circuit board.

Thus the rejection of the claims under 35 U.S.C. 112, second paragraph, should be withdrawn.

Claims 1-6 and 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson in view of Akiba and Levi.

Claims 1 and 12 recite an antenna assembly having a layer of low reluctance material which covers a third area of a PWB and that third area includes a number of components on a surface of the printed wire board. This has the advantage of providing RFI shielding of the components from RF radiated by the antenna.

Johnson is for an antenna assembly, while Akiba is for shielding. If the shielding of Akiba is applied to Johnson, the antenna will not radiate. It is well settled that where combining references would destroy the purpose of the main reference, the combination is improper; see In re Schulpen, 157 USPQ 52, 55; In re Gordon, 221 USPQ 1125, 1127. Similarly, Levi is for an antenna, and thus it is not combinable with Akiba. Further, it is for the problem of an independently steerable dual frequency antenna. Since it is for a different problem than the present invention, it is not combinable with the first two references for this additional reason, see In re Bigio, 72 USPQ2d 1209, 1212.

As previously stated, Akiba only uses small pieces of low reluctance material close to the openings in the EMC shield that are bound to appear internal to the PCB. These pieces are not even shown in the drawings (see col.6, 1.42). Hence it is not possible to determine whether or not the low reluctance pieces cover a number of components on the surface of the printed wire board as recited in claims 1 and 12. Thus even if one somehow

combines the teachings of Akiba and Johnson, the result in a technically unusable structure in which an antenna was enclosed in a shield and, the small low-reluctance patches that Akiba mentions are too small to read on the presently claimed feature of including a number of components in the area covered by the low reluctance shield as recited in claims 1 and 12. Adding the air gap of Levi to Johnson and Akiba still does not result in the claimed invention since the recited sheilding of the components would still be missing.

Thus the rejection of claims 1-6 and 8-17 under 35 U.S.C. 103 on Johnson in view of Akiba and Levi should be withdrawn.

New claims 18-23 recite the following features not found in the references: the third area spans most of the width of the printed wired board (claims 18 and 19), third area coincides with most of an area covered by a display attached to the printed wired board (claims 20 and 21), and the low reluctance material is located between a display attached to the printed wired board and the surface of the printed wired board to which the display is attached (claims 22 and 23). Thus these claims are patentable.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of \$1300 is enclosed for the additional claims fee. The Commissioner is hereby authorized to charge

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Respectfully submitted,

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Jan 23, 2006
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